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Safeguarding Rural Australia: Addressing Masculinity and Violence in Rural Settings

Framework and scope for secondary data analysis in a rural Australia context

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1. Background to the project

Earlier research performed and reported by some members of this ARC Discovery Project team (Carrington and Scott, 2008) pointed to men living in regional and remote areas of Australia as opposed to major cities[ii] experiencing higher mortality and morbidity rates for violence including interpersonal violence, alcohol-related violence, domestic violence, suicide, motor vehicle fatalities and serious workplace injuries than men living in the nation's Major Cities areas.

This ARC funded project has been investigating reasons for these patterns with the objective of developing more effective social policy responses aimed at preventing and controlling levels of violent harm in rural Australia. Potential reasons for statistically higher levels of some forms of violence involving males living in mainstream communities in rural Australia in comparison to their counterparts living in metropolitan areas are also being explored. Furthermore, the project examines men's distinctive relationships with violence, both as perpetrators and as victims, in rural contexts. Specific types of violence being investigated include injury from self-harm; the use of motor vehicles, weapons, machinery; physical force or assault; farm and other workplace accidents causing violent harm; alcohol related violence; harassment; and risky behaviour resulting in preventable injuries and illnesses. Accordingly, existing national data bases have been interrogated to determine historical patterns of violent acts and incidents.

2. Current project status

This project is work-in-progress. We have undertaken an extensive literature review and have scrutinised secondary data to produce a series of research reports available online. We have also carried out extensive qualitative field research in communities in Western Australia, Queensland and New South Wales. Journal articles based on original research outcomes which have been published or accepted for publication are available as ePrints through the project home page at: http://www.ljrc.law.qut.edu.au/research/projects/.

3. Focus of this report

This report is an update of an earlier version produced in January 2010 (see Carrington et al. 2010) which remains as an ePrint through the project's home page. The report provides an introduction to our analyses of extant secondary data with respect to violent acts and incidents relating to males living in rural settings in Australia using data which were available in public data bases at the time of production. It clarifies important aspects of our overall approach primarily by concentrating on three elements that required early scoping and resolution. Firstly, the project has taken a wide and inclusive view of the definition of violence (see Figure 1) which encompasses measures of violent acts and incidents and also data which identify risk taking behaviour and the consequences of violence; this view is outlined and justified.

The Figure 1 schematic also presents the framework round which this series of reports were constructed, essentially under the following four major headings:

- Intentional violence (physical; sexual; psychological; deprivation or neglect)
- Unintentional violent incidents (physical only)
- Risky behaviour (behaviour that can influence violent acts or incidents)
- Consequences of violence (impacts upon victims and others including family members and persons involved during or after an event)

Secondly, the research team recognised that using available data to measure forms of harm in rural settings vis-à-vis major cities would be no easy task and secondary data quality and relevancy issues would arise. This was in part because data relating to different forms of violence, violent incidences, risk taking and consequences were disparate in terms of the manner in which outcomes or 'results' were recorded by organisations prior to upwards consolidated to the national level. Consequently, existing classifications which identified the varying dimensions of Australia's 'rural settings' required consideration. The classification used to make comparisons between the city and the bush together with associated caveats is outlined in this report.

The third element discussed is in relation to national injury data. This aspect is prefaced by outlining methodology used for collection of secondary data. Broad net were cast over public databases of various administrations and jurisdictions which were then trawled for relevant material. Websites maintained by Federal government agencies, by State Governments, and by national organisations were interrogated. Statistics relating to mortality, morbidity and other health related information; violent crimes; child abuse; self-reported experiences of violence; juvenile justice; economic data (such as cost of treatment and social services); motor vehicle accidents; firearms registrations, licences and reported thefts; and workers' compensation claims were extracted and examined.

This investigation revealed that data for some pertinent issues – for example anxiety and depression statistics applicable to regional and remote areas, factors which might be potential catalysts or consequences for perpetrators and/or victims of various forms of violence – were essentially non-existent. Even where data were available, the quality and usefulness of information was often dated or inadequate for the purposes of this current research. Moreover, inconsistencies in the manner in which data were reported hindered comparisons over time and between city and rural areas. In addition, data according to gender were not always available[iii].

As a consequence of these limitations and in an endeavour to further inform our investigations, we pursued a course which led us to extant reports relating to external causes of death[iv]. We realised that statistical records for injury fatalities presented a tool – albeit a somewhat imprecise one – by which violence in different national settings could be examined and broadly compared. In other words, it was through an appreciation of personal and whole-of-community serious injury and fatality counts and costs that the impacts of violence in rural settings could be better quantified, qualified and understood. Therefore, the third element discussed in this report relates to the analysis of injury data.

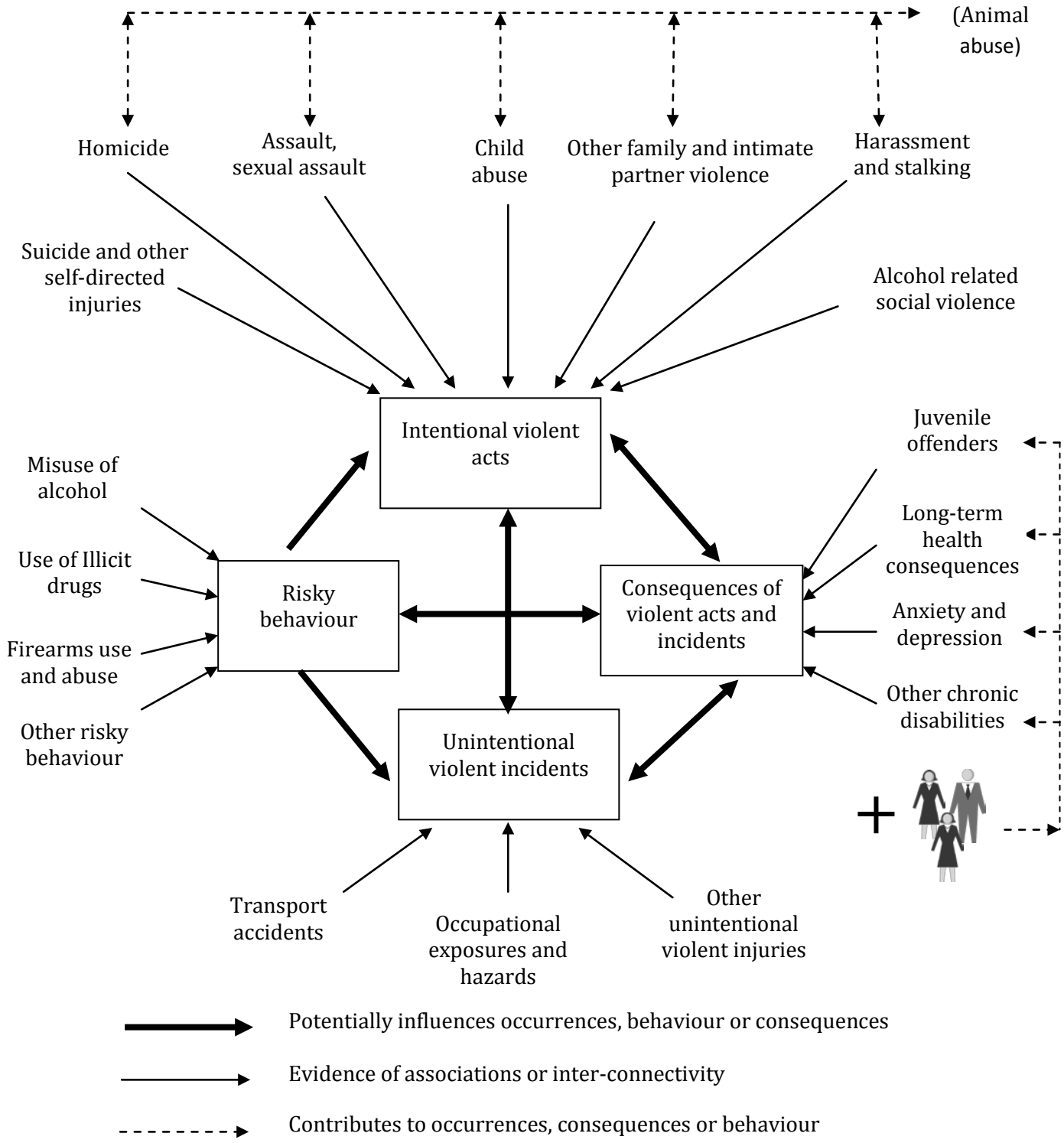

Figure 1: Schematic of violent acts and incidents and potential influences and impacts

4. Topic scope

The World Health Organisation (WHO 2002: 5) defines violence as:

> The intentional use of physical force or power, threatened or actual, against oneself, another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.

The definition used by the WHO associates intentionality with the committing of the act itself, irrespective of the outcome it produces. Excluded from its definition are injuries resulting from unintentional incidents. For the purpose of this current research, unintentional injuries caused by, for example, transport accidents, occupational exposures and hazards, burns and so on are also included in our analysis. The following considerations justify these inclusions:

1. Unintentional injuries are often associated with risky behaviour (see, for example, National Public Health Partnership 2005), an important element for consideration by this current research.
2. Unintentional injuries include cases which could have been suicides – coroners have been increasingly reluctant to make a determination of 'suicide' – but for which the intent was determined to be other than intentional self harm (ABS 2008: Cat. No. 3303.0).
3. Data on deaths are affected by the high number of cases with a status of 'open': that is, where coroners' cases are not finalised due to difficulties in determining intent and thus findings are not available to the ABS in time for publication of causes of death statistics (ABS 2008, Cat. No. 3303.0).
4. Given that data relating to intentional self harm should include not only suicides but also self-mutilation (that is, destruction or alteration of parts of the body without conscious suicidal intention), occurrences in rural Australia are under-reported in this respect (reference, for example, The George Institute of International Health article at http://www.thegeorgeinstitute.org/iih/events/latest-news/self-harm-major-road-safety-issue-for-young-drivers.cfm).
5. The literature (notably Henley et al. 2007) has illustrated high rates of serious unintentional injuries to males in rural areas in comparison with females and with urban dwelling males.
6. As with intentional violence, unintentional violent incidents can be sudden, unanticipated and thus unexpected. Furthermore, the consequences are often ongoing and far-reaching in that impacts are experienced by family members and close friends of victims well as by other individuals and the broader community.

The nature of intentional violent acts can be physical, sexual or psychological or involve deprivation or neglect. Unintentional incidents can also cause physical and emotional trauma the consequences of which can include psychological harm, chronic conditions or substance abuse. Furthermore these outcomes can become catalysts for additional violent or risk taking behaviours.

5. Classification of rural settings

This report has used, where possible, the ABS Australian Standard Geographical Classification (ASGC) for Remoteness Areas (RAs) to differentiate between the city and the bush and to distinguish varying levels of 'rurality' (ABS 2003: Census Paper 03/01). The ASGC Remoteness classification was developed in response to the demand for a statistical geography that allowed quantitative comparisons between 'city' and 'country' Australia where the defining difference was physical remoteness from goods and services. No such categorisation existed in the ASGC prior to 2001. The delimitation criteria for RAs are derived from the Accessibility/Remoteness Index of Australia (ARIA). ARIA measures the remoteness of a point based on the physical road distance to one of five size classes of population centres and as such has a number of conceptual and empirical limitations (Carrington 2007). This is because the ARIA measure is primarily a policy tool – an instrument of government – tailored to allocate funding according to scale of remoteness or accessibility to service centres and thus is not an ideal measure of rurality in any sociological sense. However, as this is the national standard for collecting spatial data, we have no choice but to use it in our report.

RAs are classified as Major Cities, Inner Regional, Outer Regional, Remote and Very Remote which have been abbreviated, respectively, as MC, IR, OR, R and VR in figures and tables throughout this series of reports. When data accessed for Inner Regional and Outer Regional areas has been consolidated prior to publication, the category is referred to as 'All Regional'; Remote and Very Remote together become 'All Remote'. In some cases data were not available for Inner Regional and, at other times, for Very Remote areas. On other occasions, data for Outer Regional, Remote and Very Remote areas were consolidated. In reality, with the exception of the census, the ABS publishes minimal population survey information about Outer Regional, Remote or Very Remote spatial units of Australia. The major reason is the cost associated with sampling outer regional and rural areas to produce results that comply with an acceptable level of statistical reliability. Hence much of the data analysed is administrative by-product data and not survey data.

Population numbers for all persons are greatest in Major Cities areas which were home to over two-thirds (68.54%) of the nation's people at the time of the 2006 Census. Numbers decline according to level of remoteness with about half as many persons living in Outer Regional areas compared with Inner Regional areas (refer to Table 1). Similarly, Remote Australia areas have about twice as many residents as Very Remote areas although the combined population of All Remote areas represents only about 2.3% of the nation's population.

Table 1: Total persons by Remoteness Areas, Australia, 2006 Census

	Major Cities	*Inner Regional*	*Outer Regional*	*Remote Australia*	*Very Remote*	*Migrat -ory*	*Total Persons*
New South Wales	4,748,502	1,327,599	426,445	32,074	4,339	45	6,539,004
Victoria	3,679,166	1,000,383	241,810	4,621	-	49	4,926,029
Queensland	2,335,823	847,657	582,275	79,435	46,440	98	3,891,728
South Australia	1,099,419	181,373	174,312	43,343	13,264	8	1,511,719
Western Australia	1,398,750	244,738	180,269	86,667	42,338	6,322	1,959,084
Tasmania	-	307,827	157,907	7,285	2,500	90	475,609
Northern Territory	-	-	106,905	41,265	42,727	99	190,996
ACT	322,836	491	-	-	-	-	323,327
Other Territories (a)	-	368	-	-	1.921	-	2.289
Australia	13,584,496	3,910,436	1,869,923	294,690	153,529	6,711	19,819,785
Proportion of total population ***%***	68.54	19.73	9.43	1.49	.77	0.03	100

(a) Includes Jervis Bay Territory and the Territories of Cocos (Keeling) and Christmas Islands
(Source: After ABS 2007, 2006 Census Data by Location)

The number of Indigenous persons is also greatest in Major Cities RAs than in any single other RA but there is not the same pattern or extent of variation between these classifications. In fact, numbers in Inner and Outer Regional areas are similar (respectively, 21.9% and 21.8% of all Indigenous residents) and Very Remote areas which have 15.2% of the nation's Indigenous population have considerably more Indigenous residents than Remote Australia which has only 8.7% of Indigenous persons (Table 2).

Table 2: Indigenous persons by Remoteness Areas, Australia, 2006 Census

	Major Cities	*Inner Regional*	*Outer Regional*	*Remote Australia*	*Very Remote*	*Mig-ratory*	*Total Persons*
New South Wales	59,267	46,186	25,575	5,933	1,106	-	138,067
Victoria	14,770	10,590	4,651	39	-	-	30,050
Queensland	36,381	26,209	36,159	10,609	17,717	-	127,075
South Australia	12,444	2,339	5,925	1,074	3,684	-	25,466
Western Australia	20,586	4,799	8,746	9,134	15,215	227	58,707
Tasmania	-	8,981	7,143	395	200	-	16,719
Northern Territory	-	-	10,458	12,225	30,812	-	53,495
ACT	3,841	3	-	-	-	-	3,844
Other Territories (a)	-	210	-	-	20	-	230
Australia	147,289	99,317	98,657	39,409	68,754	227	453,653
Proportion of total population of RAs %	1.08	2.54	5.28	13.37	44.48	3.38	2.29
Proportion of Indigenous population %	32.4	21.9	21.8	8.7	15.2	0.0	100

(a) Includes Jervis Bay Territory and the Territories of Cocos (Keeling) and Christmas Islands;
(Source: After ABS 2007, 2006 Census Data by Location)

Additional dimensions of total persons and Indigenous populations within RAs are presented in Figure 2. This purposefully illustrates the lower levels of total persons and the higher proportions of Indigenous persons within RA populations with increasing levels of remoteness. There is general recognition that rates for many forms of violent acts and incidents are higher for Indigenous persons in rural Australia (see, for example, ABS 2007: Cat. No. 4510.0; AIHW 2008: PHE 104; Cripps and McGlade 2008; Gordon et al. 2002). Exploration of reasons behind these higher rates warrants close examination. This research project, however, does not investigate issues as they might specifically relate to Indigenous men. The breadth and complexity of relevant issues demand examinations as separate undertakings. Meanwhile, this project explores the reasons for higher levels of violence, relative to urban men, for male perpetrators and their victims – both female and male – in mainstream, predominantly non-Indigenous communities in rural Australia.

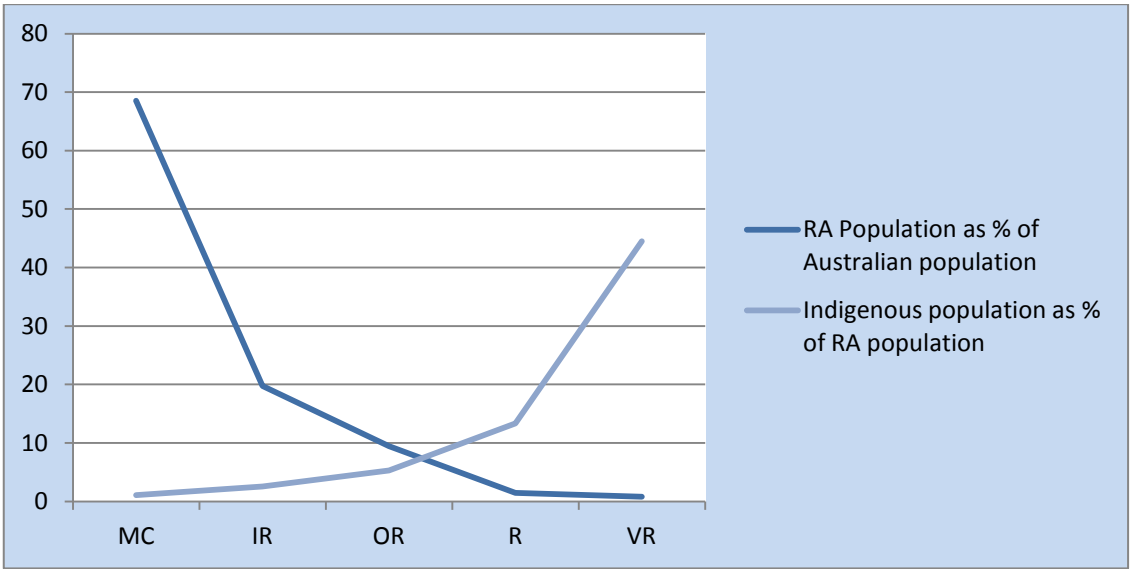

Figure 2: Dimensions of Remoteness Area populations
(Source: After ABS 2007, 2006 Census Data by Location)

Data for this research have been sourced from several different administrative and survey sources, some of which have not used the ASGC RA classifications. For example, when reporting on experiences of interpersonal violence, the national Crime and Safety Surveys (2002, 2005) classified 'Area of usual residence' as either 'Capital city' or 'Balance of State or Territory'. The latter classification, therefore, included not only persons living in All Regional and All Remote areas but also some large population centres such as Newcastle and Wollongong in NSW, Geelong in Victoria, and the Gold Coast and Sunshine Coast in Queensland. Large urban centres such as these have been categorised as Major Cities areas within the RA classifications. In spite of this, results sanction limited discussion with respect to differences between 'the city' and 'the bush'.

The report has used a variety of rate ratios (dictated by the available data) to illustrate differences in regional and remote areas in comparison with Major Cities. Where possible, standardised prevalence ratios (SPRs) have been used with the rate of 1.0 assigned to Major Cities areas. A ratio of 0.5 in a regional or remote area would indicate that the area had half the occurrence rate of Major Cities and a ratio of 2.0 would indicate that the rate in the area was double that in Major Cities.

6. Injury – key factors

Injury has been identified as the leading cause of mortality, morbidity and permanent disability affecting the quality of life of victims and their families in Australia (Cripps and Harrison 2008). Most serious injuries stem from an accident – perhaps as a result of lack of due care or risk taking behaviour by the victim or another person – or from a purposeful act, the product of physical assault, sexual assault, domestic or family violence, self-inflicted violence, or due to mental health problems; or induced by alcohol or drugs. Of course, serious injuries can also occur when there is no element of blame as sometimes happens, for instance, with accidents caused during extreme weather events or fire. These

various forms of intentional violence and accidental violent incidents are the typical causes of physical injuries and resulting trauma to Australians.

National injury data were more readily available than most other forms of data relevant to this current research. Examination of relevant aspects of Australia's injury burden permitted different forms injury and risk behaviour, especially as they related to males, to be placed into a national context with respect to levels of 'significance'. Accordingly, statistics relating to serious external injury and resulting fatalities have been prepared and are presented in this report under the following headings:

- Injury burden
- Hospital separations
- Fatal injuries
- Excess deaths
- Other injury mortality data.

7. Injury burden

The burden of disease and injury to Australia has been studied and presented by Begg et al. (2007) in terms of Years of Life Lost due to premature mortality (YLL) and Years Lost due to Disability (YLD) which, when combined, provided a measure of Disability-Adjusted Life Years (DALYs). The study did not, for the single cause group 'injury', report values for different types of injuries caused by violent acts or incidents according to ASGC RAs. The report did, however, present some consolidated differentials by remoteness – for Major Cities, and for All Regional and All Remote areas. Major Cities, with 66.8% of the estimated resident population at June 2003 (Begg et al. 2007), experienced 64.5% of the DALY burden (Table 3). All Regional and All Remote areas accounted for, respectively, 33.1% (30.4% of the population) and 2.5% (2.4% of the population) of the burden.

Table 3: Burden of injury and disease (DALY) by Remoteness Areas, Australia, 2003

	MC	*All Regional*	*All Remote*	*Total*
% of Australian population (a)	66.8	30.4	2.4	100.0
Total no. of DALYs ('000)	1,698.0	870.1	64.6	2,632.8
% of total DALYs	64.5	33.1	2.5	100.0
% male population for RAs	49.6	50.0	53.2	100.0
Male fatal burden (YLL)	n.a.	n.a.	n.a.	55.0
% male DALY burden for RAs	51.0	53.1	57.5	51.8
% male injury cause group YLL	n.a.	n.a.	n.a.	72.0

n.a. Not available
(a) Estimated resident population figures as at 30 June 2003 (ABS Cat. No. 3201.0).
(Source: After Begg et al. 2007, Figure 3.3, Tables 5.1 and 5.10)

Overall, males, with 55% of the total fatal burden (YLL) and 51.8% of Australia's total DALY burden (Table 3) (Begg et al. 2007) accounted for a somewhat greater share of the burden of injury and disease than females. Accordingly, DALYs for males were greater that for females across all RAs but more so in All Regional areas (53.1% of the burden was for males) and in All Remote areas (57.5% for males) than in Major Cities areas (Table 3).

Noteworthy, however, was that injuries category was the single cause group where males, with 72% of the YLL burden for that group, made a substantially greater contribution than females (Begg et al. 2007) (Table 4). Cause group 'injury' was, in fact, the fifth leading cause group towards national DALYs after cancer, cardiovascular disorder, mental diseases, neurological and sense disorders (refer to Table 4) (Begg et al. 2007).

Table 4: Differentials in burden of injury and disease (DALY rates) by remoteness categories for leading cause groups, Australia 2003

Broad cause group	*Male YLL burden %*	*DALY rate (a)*	*SPRs (MC = 1)*	
			All Regional	*All Remote*
Cancer	53	25.1	1.06	1.00
Cardiovascular	54	23.8	1.11	1.15
Mental	n.a.	17.6	1.07	1.08
Neurological	45	15.7	1.04	1.04
Injuries:	72	9.4	n.a.	n.a.
Unintentional injuries	n.a.	n.a.	1.43	2.21
Intentional injuries	n.a.	n.a.	1.26	2.51
Chronic respiratory	54	9.4	1.07	1.34
Diabetes	56	7.2	1.15	2.05
Musculoskeletal	n.a.	5.3	1.16	1.04
Genitourinary	n.a.	3.3	0.99	1.11
All causes	55	132.4	1.09	1.26

n.a. Not available
(a) DALY rate for Australia per 1,000 population
(Source: After Begg et al. 2007, Table 5.11)

Fatal outcomes resulting from injury leading to deaths produced 76% of the DALY burden for cause group 'injury' (Begg et al. 2007). The DALY burden for this cause group was dominated by suicide and self-inflicted injuries (27% of the injury DALY total); and transport accidents – road traffic (23%) and other land transport (5%). (Additional data associated with these forms of violent death are presented later under separate headings.)

The total DALY burden per head of population for all causes increased with level of remoteness, with All Remote areas having 1.26 times the burden of Major Cities (Table 4) (Begg et al. 2007). Although there were higher rates of burden per head of population in regional and remote areas for most causes, this particularly applied for injuries. Specifically, All Regional and All Remote areas had 1.43 and 2.21 times respectively the burden for unintentional injuries of Major Cities; and 1.26 and 2.51 times respectively the number of DALYs for intentional injuries (Table 4).

This section has used measurements of DALY, YLL and YLD calculated by Begg et al. (2007) to tease out some inequities between male and female fatalities and the wounded and between males living in the city and the bush. The material's relevance to this research stems from that fact that injuries result from either intentional violence or unintentional accidents

8. Hospital separations

The higher injury burden rates experienced outside Major Cities areas in 2003 as presented by Begg et al. (2007) have been corroborated by AIHW (2008: PHE 103) data

for hospital separations for the subsequent period of 2005-06. Specifically, during this later year, male rates of hospital separations relating to injury increased significantly with increasing remoteness; from 1.23 times greater than in Major Cities for people living in Inner Regional areas to 2.19 times greater for males living in Very Remote areas (Table 5) (AIHW 2008: PHE 103). Rates of patient days for males were also relatively greater according to the remoteness classification, from 1.13 times the Major Cities rate for Inner Regional to 2.52 for Very Remote areas. Furthermore, in Inner Regional, Outer Regional and Remote areas, male rates (respectively, 1.13, 1.29 and 1.52) were substantially greater than for females (respectively, 1.00, 1.08 and 1.22) (Table 5).

Table 5: Selected hospital separation statistics with principal diagnosis injury, by Remoteness Areas, 2005-06 (Major Cities = 1)

	IR	*OR*	*R*	*VR*
Separation SPRs:				
Males	1.23	1.45	1.70	2.19
Females	1.09	1.24	1.58	2.71
Persons	1.16	1.36	1.67	2.40
Patient days SPRs:				
Males	1.13	1.29	1.52	2.52
Females	1.00	1.08	1.22	2.54
Persons	1.06	1.18	1.39	2.53
Total separations injury & poisoning:				
Persons ('000)	109.7	60.7	10.9	8.3
%	7.1	7.9	9.4	10.2

(Source: AIHW 2008 PHE 103, Tables 2.15 & A2)

Separations where injury was the principal diagnosis were substantial due to the large contribution to mortality and morbidity in more remote populations. Each year about 7.0% of total hospital separations were due to acute injury (Begg et al. 2007) with percentage of persons affected ranging from a comparatively low 6.1% in Major Cities areas to 10.2% of all separations in Very Remote areas (Table 5). Teenage males were substantially more likely (by 3 to 4 times) than young females to be hospitalised for transport accidents, falls and assaults (AIHW 2008: PHE 104).

9. Fatal injuries

The preceding exploration of available data relating to injuries shows that especially men but also women living in regional and remote areas generally experience poorer health through injuries caused by violent acts or incidents than their counterparts living in major cities (AIHW 2008: PHE 97). These adjuncts to rural living are further illustrated in a forceful manner by higher death rates through injuries. External injuries causing death can be specifically linked to transport accidents and suicides. Indeed, for younger Australians, transport accidents and intentional self-harm were leading specific causes of death with mortality rates twice as high for teenage males as females, largely due to higher mortality from these causes and from other injuries (AIHW 2008: PHE 104). This paper has already validated the relevance to this current research of mortality data for regional and remote Australia with respect to these causes of death.

During 2002-04, 41% of fatalities caused by external injuries were for persons whose recorded location of residence was outside Major Cities (AIHW 2007 PHE 95). These regional and remote areas were home to only 34% of the Australian population at the time of the ABS 2001 Census; the proportion of the Australian population living in these areas has subsequently declined. Further exploration of death statistics for rural settings has been examined by reference to fatality data presented in particular but not exclusively by the AIHW (2008: PHE 97; 2007 PHE 95).

10. 'Excess' deaths

Concern about the magnitude of the inequity between Major Cities and rural Australia is such that, for leading causes of death during the period 2002-04, the AIHW (2008, PHE 97) reported excess cases in All Regional/All Remote areas. 'Excess' deaths represent the difference between the number of deaths observed in each ASGC Remoteness Area and the number expected if Major Cities age-specific death rates had been applied in each area. Excess deaths provide an absolute measure of magnitude and hence offer a clearer understanding of the absolute size of disadvantage in ASGC regional and remote areas in terms of human lives lost for particular causes of death (ABS 2008, PHE 97: 71).

In the period 2002-04, death as a result of external causes of injury and poisoning (generally referred to here, as in AIHW publications, simply as 'injury') represented about 7.6% of male deaths from all causes, Australia-wide. Similarity, the 2003 national YLL burden was 11% for cause group injury with males representing 72% of these fatalities (Begg et al. 2007). Violent acts or incidents in this cause category were identified as suicide, motor vehicle traffic accidents (MVTA), other land transport accidents (LTA), and interpersonal violence (IPV) as well as falls and other injuries (some of which might be as the result of intentional acts of violence).

Injury as a cause of death stood out as being of particular importance in the AIHW (2007, PHE 95) study of mortality due to the large number of excess deaths. Most notably, in the period 2002-04, MTVA and suicide alone contributed about 10% and 6% respectively to total male excess deaths from all causes in regional and remote areas (Table 6). Other (unspecified) types of injuries were responsible for another 7% of male excess deaths; 6% and 13% in, respectively, All Regional and All Remote areas. Consequently, for males of all ages living outside Major Cities areas, 23% of the total number of excess deaths was as a result of violent injuries. Moreover, male rates for leading causes of excess deaths through injury were considerably greater than for females; for example, female suicide fatalities across all ages appear to be negligible in comparison with 6% of deaths of males of all ages (Table 6).

These high rates of excess death in rural and remote areas through acute injury could be in consequence of deaths for Indigenous Australians through this cause. Indeed, injury (19% of the total number of observed deaths) was one of the main causes of death for Indigenous Australian males in Queensland, Western Australia South Australia and the Northern Territory (AIHW 2007 PHE 95: 27) and was also a leading contributor (20% of all excess deaths) to higher rates of death. Because statistics for Indigenous persons are not available by Remoteness Areas for the other eastern states including the most

populous ones of New South Wales and Victoria, further meaningful interpretation was not possible. Importantly, an earlier AIHW report (Berry and Harrison 2006) illustrated levels of physical violence also increased within the non-Indigenous population with increasing levels of remoteness.

Table 6: Leading causes of 'excess' death through injury outside Major Cities, 2002-04 (per cent)

	All males			*Female*
Cause of death	*All Regional*	*All Remote*	*All Regional / All Remote*	*All Regional / All Remote*
All ages:				
MVTA	10.0	11.0	10.0	8.0
Suicide	6.0	9.0	6.0	0.0
Other injuries	6.0	13.0	7.0	5.0
Total deaths through injury	22.0	33.0	23.0	13.0
Deaths due to other causes	78.0	67.0	77.0	87.0
Total deaths	100.0	100.0	100.0	100.0
Aged 15-64 years:				
MVTA	20.0	13.0	18.0	16.0
Other LTA	2.0	2.0	2.0	2.0
Suicide	11.0	2.0	9.0	3.0

(Source: AIHW 2008 PHE 97, Tables 61 & 62; AIHW 2007 PHE 95, Tables 3.4, 3.14, 3.15 & 7.1)

The young age of many of the people affected was also a standout factor. Most of the excess deaths were for people aged 15-64 years (AIHW 2007 PHE 95). Furthermore, transport accidents (MTVAs 20% and Other LTAs 2%) accounted for 22% of excess deaths for persons aged less than 65 years in All Regional areas and suicide for another 11% (Table 6). These two notable causes of violent deaths have been discussed in greater depth within other reports in this series: Data Reports 1 and 2 for suicides; Data Report 3 for MVTAs.

The average annual number of male deaths in 2002-04 from all causes and, separately, from injury deaths are presented by Remoteness Area in Table 7. Accordingly, the relative import of injury deaths is illustrated. Also presented in Table 7 is the number of *excess* deaths from all causes and from injuries, thus providing an additional perspective. Deaths in excess of the number expected if Major Cities rates applied in each area highlight the magnitude of greater death rates outside Major Cities areas. For instance, the average number of excess deaths for all males outside Major Cities areas with fatal injuries during each year was 669 (201 for females); for Non-Indigenous males, the number of excess deaths was 548 (142 females). Excess deaths, therefore, represented a substantial proportion of the total number of observed fatalities as a result of injuries for all males (31% of the 2,181 total) and also for non-Indigenous males (28% of 1,941) in regional and remote areas. Furthermore, during 2002-04, around 80% of excess injury deaths in All Regional/All Remote areas were for males.

Table 7: Average annual injury deaths including 'excess' deaths, Australia, 2002-04

	Males	*Females*	
	All Regional / All Remote	*All Reg./ All*	*% of*

	MC	IR	OR	R	VR	Total	MC	Remote	total
Average annual number of observed All causes deaths:									
All persons	41,935	16,439	8,133	1,063	620	26,255	41,670	22,462	40.4
Non-Indigenous	40,578	15,847	7,683	867	274	24,671	40,346	21,167	40.6
;Average annual number of All causes excess deaths:									
All persons	-	1,350	1,093	178	252	2,873	-	1,544	21.2
Non-Indigenous	-	1,271	949	60	7	2,287	-	1,111	19.5
All causes excess deaths as % of observed All causes deaths:									
All persons	-	8.2	13.4	16.7	40.6	10.9	-	6.9	-
Non-Indigenous	-	8.0	12.4	6.9	2.6	9.3	-	5.2	-
Average annual number of observed Injury deaths:									
All persons	2,998	1,222	704	130	125	2,181	1,565	967	18.1
Non-Indigenous	2,838	1,153	644	96	48	1,941	1,493	860	18.1
Average annual number of Injury excess deaths:									
All persons	-	286	240	57	86	669	-	201	13.1
Non-Indigenous	-	273	217	34	24	548	-	142	11.5
Injury excess deaths as % of observed Injury deaths:									
All persons	-	23.4	34.1	43.8	68.8	30.7	-	20.8	-
Non-Indigenous	-	23.7	33.7	35.4	50.0	28.2	-	16.5	-
Injury excess deaths as % of All causes excess deaths:									
All persons	-	21.2	22.0	32.0	34.1	23.3	-	13.0	-
Non-Indigenous	-	21.5	22.9	56.7	342.9	24.0	-	12.8	-
SPRs for injury deaths:									
All persons	1.00	1.31	1.52	1.78	3.21	1.44	1.00	1.26	-
Non-Indigenous	1.00	1.31	1.51	1.55	2.00	1.39	1.00	1.20	-

- Not applicable
(Source: MTVA & suicide – AIHW 2008 PHE 97, Table 63, 64 & 65; IPV, Falls, Other LTA & Other Injuries –AIHW 2007 PHE 95, Tables 7.1 & 7.3)

Although it is not possible to apportion all excess deaths for males in regional and remote Australia to particular causes, it seems there is a greater likelihood for them to be as a result of injury than other cause. This is substantiated by the fact that injury excess deaths represented 30.7% of observed injury deaths whereas only one in ten (10.9%) of observed all causes deaths were excess deaths. (Table 7). Additionally, excess deaths as a result of injuries were responsible for 23.3% of all causes excess deaths for males in regional and remote Australia and 24.0% for non-Indigenous males For males in Inner Regional and Outer Regional areas, injuries contributed, respectively, 21.2% and 22.0% of all causes excess deaths and 32.0% and 34.1% of excess deaths in, respectively, Remote and Very Remote areas (AIHW 2007, PHE 95).

Prevalence ratios in Table 7 provide further clarification with respect to the inter-regional inequity and the risk of violent death. Prevalence ratios for males increased with level remoteness, from 1.31 for the Inner Regional area to 1.52, 1.78 and, most alarmingly, 3.21 for the Very Remote area. Overall, males living outside Major Cities areas experienced death through injury at 1.44 times the rate of their urban counterparts. Comparable rates for non-Indigenous males were only marginally less, at 1.39 times the Major Cities rate. By comparison, the excess deaths ratio for females living in All Regional/ All Remote areas was less extreme being, for All females and for Non-Indigenous females, 1.26 and 1.20 times respectively that of females in Major Cities; this is also cause for concern.

There was minimal variation in prevalence rations for Indigenous and Non-Indigenous males in Inner Regional, Outer Regional and Remote areas. In Very Remote areas, the Non-Indigenous prevalence ratio (2.00) was substantially lower than for All persons (3.21): thus, by default, mortality rates for Indigenous Australians in Remote areas were considerably higher.

11. Other injury mortality data

Another AIHW report (Henley and Harrison 2009: INJCAT 127) described injury mortality in Australia for 2004-05, a shorter time span than for the AIHW report just examined (2007: PHE 95). Henley and Harrison (2009) analysed data by remoteness area and also published age-specific rates or males and females which permitted the calculation of male prevalence ratios for some types of injury deaths. In general terms, rates were similar to other results discussed here and thus this report has been useful for validation purposes.

According to the Henley and Harrison (2009) report, a total of 10,508 community injury deaths occurred in Australia in 2004-05, 63% of which were for males (Table 8). The age-standardised rate was 63.9 deaths per 100,000 population for males and 30.3 per 100,000 for females. Common causes of injury deaths included suicide and transport which accounted for 24% and 18% of all injury deaths, respectively. Males were almost four times more likely than females to commit suicide. Similarly, for transport deaths (of which 87% were as a result of MTVAs), males were close to three times more likely than females to die as a result of transport accidents.

Results selected for publication in this report have been based on National Coroners Information System (NCIS) or ABS data depending on which organisation was deemed by Henley and Harrison (2009) to have produce the more reliable estimates. Apparently there was strong evidence of undercounting in ABS-sourced data for some external cause categories. Reported totals were significantly less than those recorded by the NCIS particularly in relation to transport accidents (especially MVTAs in NSW), suicides and homicides. Conversely, some overestimates were suspected by the authors in other external cause categories such as poisoning (10%) and Other unintentional deaths (17% of all injury deaths). If indeed there were over-countings, alternative classifications would most likely have included suicide or, to a lesser degree, homicide.

Table 8: Injury deaths by major cause and gender, Australia 2004-05

Community injury death category	*Data source*	*Total injury deaths*	*% of all injury deaths*	*% males*	*Male rate/ 100,000*	*Female rate/ 100,000*	*Male: female ratios*
Unintentional deaths:							
Falls (a)	ABS	2,881	27	40	13.7	12.5	1.1
Transportation (b)	NCIS	1,796	17	74	13.1	4.6	2.8
Poisoning (drugs)(c)	NCIS	748	7	68	5.1	2.2	2.3
Poisoning (other)	NCIS	307	3	74	2.3	0.7	3.3
Drowning	ABS	236	2	74	1.7	0.6	2.8
Smoke, fire, heat etc.	ABS	156	1	66	1.0	0.5	2.0
Other injuries	ABS	1,823	17	64	12.4	5.4	2.3
Intentional deaths:							
Suicide (d)	NCIS	2,341	22	79	18.5	4.8	3.9
Homicide	NCIS	220	2	67	1.5	0.7	2.1
Total		10,508	100	63	63.9	30.3	2.1

(a) Falls were concentrated in the older age groups; persons aged 70 years and over accounted for almost 90% of all deaths in this group.
(b) Includes all transport deaths (i.e. MVTA, motor vehicle non-traffic, railway, water and air transport). MVTA accounted for 87% of all deaths in this group.
(c) Poisoning by drugs accounted for 69% of poisoning deaths, down from 82% in 2003-04. Narcotics, particularly heroin, were associated with 56% of drug deaths in this category.
(d) Based on National Crime (NCIS) rather than ABS data as data provided by NCIS appeared to produce better estimates. The NCIS-derived figure was 308 (or 15%) more than the ABS-derived figure for the period.
(Source: After Henley and Harrison 2009)

Age-adjusted rates presented by Henley and Harrison (2009) for injury mortality during 2004-05 increased according to the residential remoteness area of the deceased, as did SPRs (Table 9). Indeed, SPRs for RAs during 2004-05 ranged from 1.22 times greater in Inner Regional areas than in Major Cities areas to 2.49 times in Very Remote areas. SPRs are lower than those calculated for 2002-04 data for males alone as shown in Table 7 (AIHW 2007: PHE 95). Henley and Harrison (2009) RA data, however, referenced all persons (males and females) and thus the results reflect lower rates of female injury fatalities in all areas. Nevertheless, results are consistent with previous patterns and remain, therefore, alarming.

Table 9: Community injury deaths by Remoteness Areas, Australia

	MC	*IR*	*OR*	*R*	*VR*
2004-05:					
Age adjusted rate / 100,000	41	50.0	59.1	71.5	101.9
Standardised prevalence ratios	1.00	1.22	1.44	1.74	2.49
2003-04:					
Age adjusted rate / 100,000	43.8	52.5	58.4	68.9	114.3
Standardised prevalence ratios	1.00	1.20	1.34	1.57	2.61

Source: After Henley and Harrison (2009), Henley et al. (2007)

A slight overall downward trend in injury deaths which had been evident over the past few years continued in 2004–05. Although this trend was apparently more marked for males than females, Henley and Harrison (2009) pointed out that under-ascertainment of injury deaths in the source data file may have contributed to this. Furthermore, this

trend applied only to Major Cities and Inner Regional areas. Additionally, SPRs for All Regional and All Remote areas were greater in 2004-05 than in 2003-04, signifying further widening of the disparity for those who live away from large metropolitan centres.

12. Other reports in this series

Other *Safeguarding Rural Australia: Addressing Masculinity and Violence in Rural Settings* reports within this series are available through the project home page at http://www.ljrc.law.qut.edu.au/research/projects/rural/ . They are:

Carrington, K., McIntosh, A., Hogg, R. and Scott, J. (2011), 'Suicide and other violent self-harm in an Australian rural context: Analysis of secondary data', *Safeguarding Rural Australia: Masculinity and Violence in Rural Settings*, Centre for Law and Justice, QUT, Brisbane.

Carrington, K., McIntosh, A., Hogg, R. and Scott, J. (2011), 'Intentional violent harm to others: Analysis of secondary data'' *Safeguarding Rural Australia: Masculinity and Violence in Rural Settings*, Centre for Law and Justice, QUT, Brisbane.

Carrington, K., McIntosh, A., Hogg, R. and Scott, J. (2011), 'Unintentional violent harm including injuries in an Australian rural context: Analysis of secondary data'' *Safeguarding Rural Australia: Masculinity and Violence in Rural Settings*, Centre for Law and Justice, QUT, Brisbane,

Carrington, K., McIntosh, A., Hogg, R. and Scott, J. (2011), 'Risky behaviour in a rural Australian context: Analysis of secondary data' *Safeguarding Rural Australia: Masculinity and Violence in Rural Settings*, Centre for Law and Justice, QUT, Brisbane.

Carrington, K., McIntosh, A., Hogg, R. and Scott, J. (2011), 'Consequences of violent harm in a rural Australian context: Analysis of secondary data' *Safeguarding Rural Australia: Masculinity and Violence in Rural Settings*, Centre for Law and Justice, QUT, Brisbane.

Endnotes

[i] Principal author

[ii] This series of reports has used, where possible, the ABS Australian Standard Geographical Classification (ASGC) for Remoteness Areas (RAs) to differentiate between the bush and to distinguish varying levels of 'rurality' (ABS 2003: Census Paper No. 03/01). Refer to 'Classification of rural settings' in this report for descriptions and uses.

[iii] Gaps in data availability and other data quality issues will be dealt with more comprehensively within a separate report in this series.

[iv] External causes of death relate to cases where the underlying cause of death is external to the body.

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